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This beautiful plant grows in wet meadows and boggy ravines and was collected by the writer at Leeds, Benson County, August 23, 1898, being seemingly the only representative of the genus *Euthamia* in central North Dakota.

Leeds, North Dakota.

THE TYPE OF THE GENUS PANICUM.

BY J. A. NIEUWLAND.

Article 45, section 6 of the rules of the Vienna Congress makes provision for the segregation of the natural genera from older more or less composite ones. It has been shown by A. A. Eaton* that in case of the genera *Serapias* and *Epipactis* a blunder had been made so that the type of the original group was put in the segregate genus. The reasoning of Mr. Eaton is as follows: "The genus Serapias of Linnaeus is composite consisting of *Cephalanthera, Epipactis* (Adanson em. R. Br., not Böhmer) and *Serapias* as restricted by Swartz. The first two genera have been segregated, and the residue of the original genus now bears the name. It has been customary to leave the final residue of segregation the original name, but this is contrary to Article 45 of the Vienna Code provided the type or origin of the group is not contained aggregate consisting of species of *Cephalanthera* and *Epipactis* Adans., genera shown by Wettstein to be inseparable. This type is fixed by Linnaeus in Gen. Pl. Ed. 5, (1754.) as t. 245 of Tournefort which represents *S. grandiflora.* The name *Serapias* must then be restored to the *Cephalanthera-Epipactis* group."

The case of the Linnaean genus *Panicum* is quite similar. The type of the genus *Panicum* is not at present in what is called *Panicum* by the authors, but rather in the segregated *Chaetochloa* or *Ixophorus* or *Setaria* etc. (or whatever synonome is preferred.) The segregate has not fared well from the very start since wrongly made up by Beauvais, and has passed through all the throes of synonomy and homonymy. The name *Panicum* should therefore, be given to this group that contains the undisputed type, *Panicum*

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* Eaton, A. A. Proc. Biol. Soc. Washington, XXI, [1908] p. 63–68. also Fedde, F. Rep. Novar. Spec. [1908] VI. p 45.

italicum Linn. The other group is then the residue though at present containing the larger number of species, and as it has never to my knowledge received a name one should be given it.

Linnaeus, neither in the Species Plantarum of 1753 nor in the Genera Plantarum of 1754 indicated which species he considered the type of his composite group. His genera were usually so heterogeneous that an average representative plant could not have served as such, but in the Philosophia Botanica[*] he left us his impressions as to what his followers were to do should they find it necessary to break up his so called genera into their original natural genera. We are justified then in appealing to Linnaeus at his own suggestion or direction for the method to be used and the only reasonable one for such a procedure as the segregation of a genus. By the study of the pre-Linnaean authors it is not difficult to pick out the type species, especially when we can trace the plants back to the author who first named or discovered them. Dr. E. L. Greene[†] has pointed out this method, in the case, for instance of the genus *Draba*, and often this way is the only one for arriving at the correct idea of the types. If then for no other reason than this, the study of pre-Linnaean works has become an indispensible requisite for taxonomists, even for such as conform blindly to the 1753 "starting point." Study of post-Linnaean authors helps only when we are sure that they conform to the reasonable method of returning to the genera held by botanists prior to 1753. If the authors afterwards made blunders without designating types then the mistakes are to be corrected by the appeal to the older writers.

The type of the genus *Panicum* and the plant to which the name *Panicum* was first applied by Pliny is indisputably the plant which Linnaeus and others before him called *Panicum italicum*. A survey of the pre-Linnaean authors leaves no doubt whatever of this fact.[‡] Though Caesalpinus says that the derivation of the name comes from the fact that the fruit is in panicles, Pliny states that a kind of poorer grade of bread (*panis*) was made from the plant, and it is the general opinion that Pliny's plant was *P. italicum.*

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[*] Linnaeus, C., Philosophica Botanica 1st ed. 1751 also 2nd ed. 1755 pp 197, 198 in both.

[†] Greene, E. L., Pittonia Vol. 4, p. 203.

[‡] *Panicum Italicum*, sive panicula majore, Bauhin, C. Pinax, 27. *Panicum*, Dodonaeus R. Pempt. p. 497–498. *Panicum sativum* Cusa, Lugd *Panicum vulgare* Clusius C., Hist. *Panicum indicum* Tabernaemontanus, J. T., Kreutterbuch. (1625) p. 639. also Gerard's Herbal. *Panicum* Caesalpinus, A. De Plantis (1583) p. 189. *Panicum* Marcellus Vergilius. Com. Ped. Diosc. 1529. p. 239. *Panicum* Herm. Barbarus Coroll. in Diosc. (1530)

What seems all the more strange that Beauvais should have mistaken the type in his attempt at segregation, is that even in the editions of the Species Plantarum of Linnaeus the members of the group to which *P. italicum* belongs are described by Linnaeus before those to which the name is now given, so that this is additional reason to suppose that even Linnaeus if he could be supposed to give preference to types, hereby showed a perference. by right of position at least. I can only guess that the reason, if any exists, why Beauvais should have considered the *Setaria* group as real *Panica,* to have been what their panicles were more typical in the modern sense of the word, but the explanation of the origin of the derivation just given explains this. Even the name *Setaria* could not stand as it is a homonym, Acherson having given it to a group of lichens in 1798. Scribner recognizing this, called the genus *Chaetochloa,* but it had already been given a name, *Ixophorus* by Schlectendal in 1861–62. Kuntze* in his Revisio Plantarum Generum suggested a name *Chamaeraphis* of Robert Brown, but this simply amounts to joining the *Setaria* of Beauvais to the other genus, and there are those who hold that they are quite separate and distinct groups of plants. The new Gray's Manual of Fernald and Robinson still holds to the name *Setaria,* as also does Mr. Parrish† both appealing to the international laws of nomenclature, in spite of the fact that the name is a homonym. In view of the appeal of Mr. A. A. Eaton to Art. 45, in the case of *Epipactis* to which the case of *Panicum* and *Chaetochloa* seems to me to be a parallel, it would appear that the Vienna Code needs

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* Kuntze, O. Rev.Pl. II., p. 766.

† Parrish, S. B. Muhlenbergia. Vol. V. p. 114.

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p. 34. *Panicum* Chabraeus, D. Stirp. Sciagraph. (1677) p. 178. *Panicum* Ruellius De Nat. Stirp. (1543) p. 322. *Panicum aliud Indicum* Lobelius. M. Observ. (1576) p. 25. *Panicum* Matthioli, P. A. Com. sex. Lib. Diosc. (1559) 255, 256. also do, (1554) p 230. also do. (1552) p. 229. *Panicum Italicum* sive paniculo majore, Tournefort. J. P. Inst. Rei. Herb. (1700.) *a.* Fig. 298. also Els. Bot. (1694.) p. 417. & Fig. 298. etc. etc. *Panicum* Dodonaeus, R. Frum. Leg. (1564.) p. 69. also do. Com. de Stirp. (1559) p. 11. also do. Hist. des Plantes (1557) 317, 318.

some explanatory commentary, or at least a few more specific dogmatic or arbitrary decisions; for this would be the only way out of the difficulty of contradictory rules unless they be abrogated and this is not likely for a while at least.

In any case, the only reasonable way out of the predicament is to restore the name *Panicum* to the group of plants to which it was applied as far back as nearly two thousand years ago. Even the intrepretation of the Vienna Code requires this. *Setaria* was conceived in falsehood, it is itself a homonym and the attempts to correct the mistake have so far resulted in at least one other synonyme, so that there would seem to be little reason to perpetuate a blunder when we can easily correct the mistake, the Vienna Code favoring. As the matter now stands the name *Panicum* rightly belongs to the plant group that contains *Panicum italicum* Linn., which is now called *Ixophorus italicus* (Linn.) Nash., *Chaetochloa italica* (Linn.) Scrib., or *Setaria italica* (Linn.) R. & S. . This proprocedure leaves the other genus hitherto called *Panicum* by the authors, without a name, as far as I am able to ascertain, and I propose that of **Chasea**. Following is the synonymy of the genera. I shall indicate only a few of the transferred plants under the new name.

PANICUM (Pliny) Linn., 1753.
  Setaria Beauvais, 1812 not Achers., 1798.
    Ixophorus Schlecht., 1861–62,
      Chaetochloa Scribner, 1791.
        Chamaeraphis [R. Br. 1810 (?)] O. Kuntze, 1891.

PANICUM ITALICUM Linn. 1753.
  Setaria italica (Linn.) R. &. S. 1897.
  Ixophorus italicus (Linn.) Nash, 1895.
  Chaetochloa italica (Linn.) Scrib., 1897.
  Chamaeraphis italica (Linn.) Kuntze, 1891.

PANICUM VIRIDE Linn, 1762.
  Setaria viridis (Linn.) Beauv., 1812.
  Ixophorus viridis (Linn.) Nash, 1895.
  Chamaeraphis viridis (Linn.) Porter, 1893.
  Chaetochloa viridis (Linn.) Scribn., 1897.

PANICUM GLAUCUM Linn., 1753.
  Setaria glauca (Linn.) Beauv. 1812.

Ixophorus glaucus (Linn.) Nash, 1895.
Chamaeraphis glauca (Linn.) Kuntze, 1891.
Chaetochloa glauca (Linn.) Scribn. 1897.
Pseudoraphis glauca (Linn.) Griff. 1851.

PANICUM VERTICILLATUM Linn., 1762.
Setaria verticillata (Linn.) Beauv., 1812.
Ixophorus verticillatus (Linn.) Nash. 1895.
Chamaeraphis verticillata (Linn.) Porter, 1893.
Chaetochloa verticillata (Linn.) Scribn., 1897.

PANICUM OCCIDENTALE (Nash.) Nwd.
Chaetochloa occidentalis Nash, 1901.

PANICUM VERSICOLOR (Bick.) Nwd.
Chaetochloa versicolor Bicknell, 1898.

CHASEA *nov. nom.*
Panicum of the authors not of Linnaeus or only in part.

CHASEA CLANDESTINA (Linn.) Nwd.
Panicum clandestinum. Linn., 1753.

CHASEA DICHOTOMA (Linn.) Nwd.
Panicum dichotoma Linn., 1753.

CHASEA PUBESCENS (Lam.) Nwd.
Panicum pubescens Lam. 1797.

CHASEA ANGUSTIFOLIA (Ell.) Nwd.
Panicum angustifolium Ell., 1817.

CHASEA VIRGATA (Linn.) Nwd.
Panicum virgatum Linn., 1753.

CHASEA AMARA (Ell.) Nwd.
Panicum amarum Ell. 1817.

CHASEA VIOLACEA (Linn.) Nwd.
Panicum violiaceum Linn., 1753.

CHASEA PROLIFERA (Lam.) Nwd.
Panicum proliferum Lam., 1797.

CHASEA CAPILLARIS (Linn.) Nwd.
Panicum capillare Linn., 1753.

CHASEA FLEXILIS (Gatt.) Nwd.
Panicum flexile (Gatt.) Scrib. 1893.
Panicum capillare var. *flexile* Gattinger, 1887.

Other plants belonging to the group are *P. patens* L; *P. latifolium* Linn., *P. brevifolium* Linn., and many more.]

TERATOLOGICAL NOTES.

IV.—Frequent Occurrence of a Third Pseudocardinal in the Right Valve of Certain Species of *Lampsilis*.

During the past four years, I have examined the hinge areas of a large number of *Unionidæ*, and have been much impressed with the fact that the dentition of these freshwater mollusks is very variable, not only within the family and within the genus, but even within the species. That considerable variation exists is to be expected, since it is generally conceded that the teeth of *Pelecypoda*, being largely moulded by the dynamics of situation, change with the influences to which their form is due, and in the course of time may become obsolete from disuse, as in *Anodonta**, or may simulate those of other groups. As a rule, however, the type of dentition is pretty constant for the various families and genera, so that they may be given a definite dental formula. The freshwater mussels are schizodont in their dentition, their hinge teeth, when present, consisting of a subumbonal and a lateral series, known as pseudocardinals and pseudolaterals. The ligament is external, parivincular and opisthodetic. *Unionidæ* are distributed in the lakes, ponds, and streams throughout the entire world, and in the Mississippian region of America we find their metropolis.

In his Synopsis, the only comprehensive recent work dealing with the great family of Naiades, Simpson† defines the dentition of the genus *Lampsilis* in the following characterization: "Hinge with one or two pseudocardinals and one lateral in the right valve, and two pseudocardinals and two laterals in the left." Other

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* Dall, W. H. *in* von Zittel, Karl A. Textbook of Palaeontology, Eastman's Translation I (2): 353–354. (1900).

† Simpson, Charles Torrey. Synopsis of the Naiades, or Pearly Fresh-Water Mussels. Proc. U. S. Nat. Museum XXII: 526. (1900).